RECLAMATION

Managing Water in the West

Final Environmental Assessment

Arvin-Edison Water Storage District / Improvement District #4 Exchange-Facilitated Transfer 2010

EA-09-90

U.S. Department of the Interior
Bureau of Reclamation
Mid Pacific Region
South-Central California Area Office
Fresno, California

January 2009

Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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List of Acronyms and Abbreviations

AEWSD	Arvin-Edison Water Storage District
AF	acre-feet
APE	area of potential effects
CAA	Clean Air Act
cfs	cubic-feet per second
CO	carbon monoxide
Corps	U.S. Army Corps of Engineers
CVC	Cross Valley Canal
CVP	Central Valley Project
CWA	Clean Water Act
DWR	Department of Water Resources
EA	Environmental Assessment
ESA	Endangered Species Act
FKC	Friant-Kern Canal
FWCA	Fish and Wildlife Coordination Act
ID4	Improvement District #4 of Kern County Water Agency
ITA	Indian Trust Assets
KCWA	Kern County Water Agency
MBTA	Migratory Bird Treaty Act
NHPA	National Historic Preservation Act
NO_x	nitrous oxides
NRHP	National Register of Historic Places
PM_{10}	particulate matter with a diameter of less than 10 microns
Reclamation	U.S. Bureau of Reclamation
SIP	State Implementation Plan
SJVAB	San Joaquin Valley Air Board
SJVAPCD	San Joaquin Valley Air Pollution Control District
State	State of California
SWP	State Water Project
TDS	total dissolved solids
U.S.	United States
USFWS	U.S. Fish and Wildlife Service
VOC	volatile organic compounds

Section 1 Purpose and Need for Action

1.1 Background

The State of California (State) has historically experienced periods of drought and flooding. Water agencies continually strive to prepare for varying water supply conditions to the extent possible so that agricultural or urban water supply needs can be met regardless of the water availability conditions. This could be achieved by having a variety of water supply options that can be implemented as needed. The ability to move water supplies from an area of greater supply to an area of lesser supply is one strategy that can be useful.

In 2005, the Kern County Water Agency (KCWA) Improvement District #4 (ID4) had surplus State Water Project (SWP) supplies and Arvin-Edison Water Storage District (AEWSD), a Central Valley Project (CVP) contractor, was operating its groundwater extraction wells during a deficit water supply year. Subsequently, ID4 and AEWSD entered into an exchange program where ID4 delivered 10,000 acre-feet (AF) of its SWP supply to AEWSD in 2005 and AEWSD agreed to return a like amount of water to ID4 at a later time.

Currently, the State is experiencing unprecedented water management challenges during the current and extended dry hydrology, which is now in its third consecutive year. The SWP is forecasting very low storage conditions in all major reservoirs. As a result, the SWP has declared only 40 percent allocation of their Table A supplies to their contractors for the 2009 contract year (March 1, 2009 through February 28, 2010) and has recently forecasted a 5 percent allocation for the 2010 contract year. In order to offset any effects due to its reduced SWP supply, ID4 is pursuing any available supplemental water supplies and has requested that AEWSD fulfill its obligation under their 2005 exchange program.

1.2 Purpose and Need

ID4 needs to supplement its SWP supply in order to meet its service area demands during a dry hydrological year in 2009 and in anticipated similar conditions in 2010. AEWSD's purpose is to fulfill an obligation under a previous agreement by delivering a portion of its CVP water to ID4.

1.3 Scope

The Bureau of Reclamation (Reclamation) is preparing this Environmental Assessment (EA) to examine the potential impacts of approving an exchange-facilitated transfer involving the delivery of 10,000 AF of AEWSD's CVP water to ID4. Both districts are located in the southern San Joaquin Valley, in Kern County, California (Figure 1).

The Proposed Action would occur during the remainder of the 2010 calendar year; therefore, this will be the temporal scope of the Proposed Action.

1.4 Potential Issues

This EA will analyze the affected environment of the Proposed Action in order to determine the potential and cumulative impacts to the following resources:

- Water Resources
    - Global Climate Change
    - Surface Water Resources
    - Groundwater Resources
    - Water Quality
    - Conveyance Facilities and Rivers
- Biological Resources
- Land Use
- Cultural Resources
- Indian Trust Assets (ITA)
- Socioeconomics
- Environmental Justice
- Air Quality

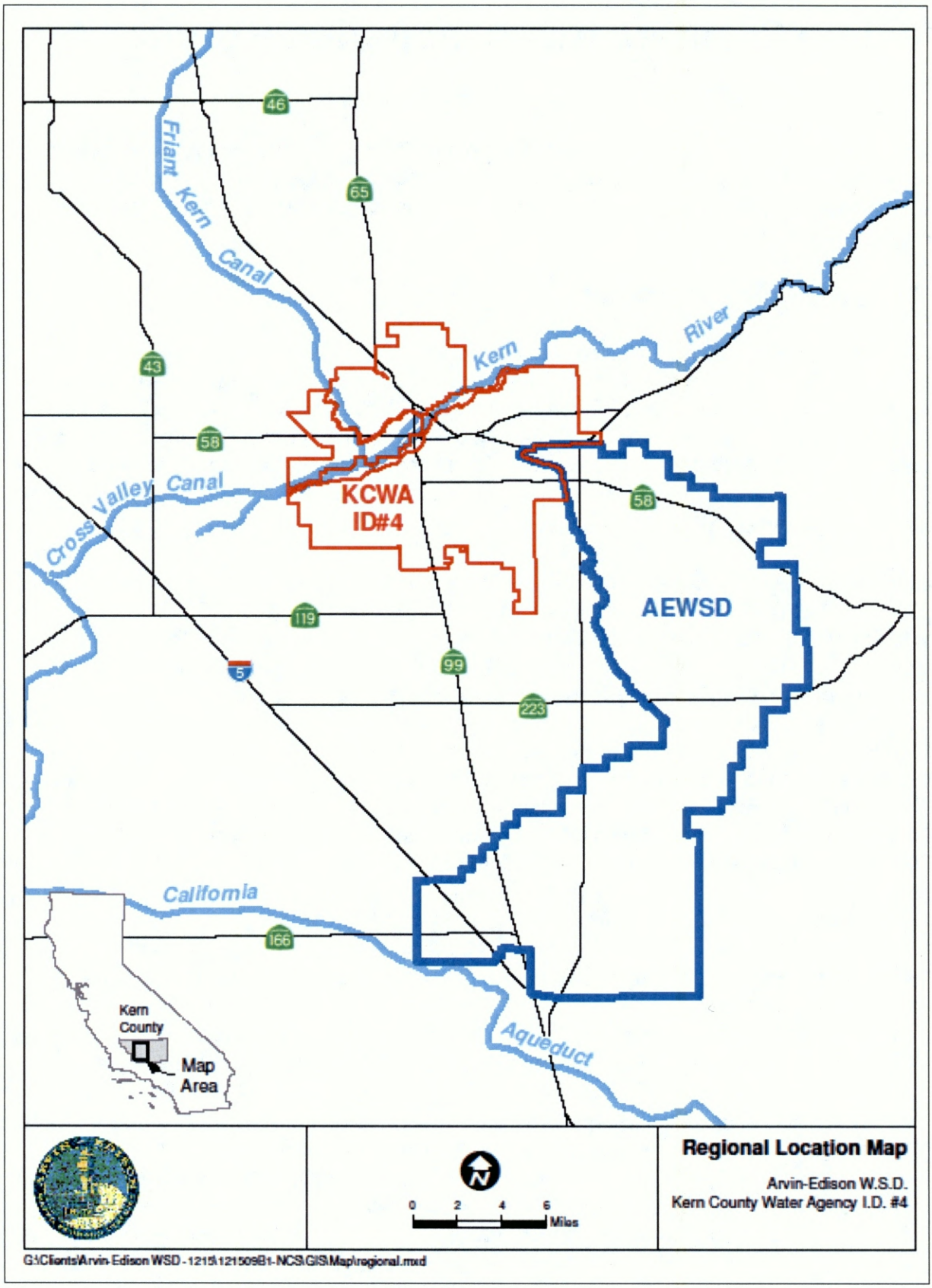

Figure 1 – Project and Regional Location Map

Section 2 Alternatives Including Proposed Action

This EA considers two possible actions: the No Action Alternative and the Proposed Action. The No Action Alternative reflects future conditions over the temporal scope without the Proposed Action and serves as a basis of comparison for determining potential effects to the human environment.

2.1 No Action Alternative

Under the No Action Alternative, Reclamation would not approve the exchange-facilitated transfer. AEWSD would retain their CVP supplies and use it as allowed under its contract with Reclamation and ID4 would look for other sources of water to supplement its SWP supply. AEWSD would continue to pursue other sources of water to deliver to ID4; however, other sources have yet to be identified, is speculative at this point, and outside the scope of this EA.

2.2 Proposed Action

Under the Proposed Action, Reclamation would approve the exchange-facilitated transfer which would allow AEWSD to deliver 10,000 AF of its Class 1, Class 2 and/or 215 Water (when available) to ID4. The Proposed Action would occur during the remainder of the 2010 calendar year. As AEWSD's CVP water supplies, needs, and obligations develop, the actual delivery amount would be better defined but would not exceed the maximum quantity of 10,000 AF. The CVP water would be delivered from Millerton Lake Reservoir into the Friant-Kern Canal (FKC) and conveyed towards the FKC terminus near milepost 151.80. From there, the CVP water could be diverted into the Cross Valley Canal (CVC) via existing turnouts/interties for ultimate delivery to ID4. In addition, the CVP water could be released into the Kern River channel at the FKC terminus where ID4 could then divert the water into its internal distribution system. No other CVP facilities would be utilized in the delivery of this water.

The Proposed Action would be subject to the following conditions:

- no new construction or modifications of any water diversion or conveyance facilities would be allowed;
- there would be no introduction of non-CVP water into CVP facilities;
- all necessary agreements for use of the FKC, FKC/CVC Intertie, AEWSD Intake Canal/CVC Intertie, CVC, and the Kern River are required before each facility is utilized;
- all transfers and exchanges involving CVP water must comply with all applicable federal, state and local laws, regulations, permits, guidelines and policies.
- all transfers and exchanges involving CVP water cannot alter the flow regime of natural waterways or natural watercourses such as rivers, streams, creeks, ponds, pools, wetlands, etc., so as to have a detrimental effect on fish or wildlife or their habitats; and
- ID4 would use the CVP water for groundwater recharge, municipal, industrial and/or drinking water purposes within their service area and approved places of use.

Section 3 Affected Environment & Environmental Consequences

This section identifies the potentially affected environment and the environmental consequences involved with the Proposed Action and the No Action Alternative, in addition to environmental trends and conditions that currently exist.

3.1 Water Resources

Climate change is an environmental trend and for the purpose of this EA refers to changes in global or regional climate over time and is expected to have some effect on the snow pack of the Sierra Nevada and the run-off regime. Current data are not yet clear on the hydrologic changes and how they would affect the Friant Division of the CVP as well as other federal, state and local river operations within the action area. Water allocations are made dependent on hydrologic conditions and environmental requirements. Since operations and allocations are flexible, any changes in hydrologic conditions due to climate change would be within the respective operations' flexibility and therefore water resource changes due to climate change would be the same with or without the Proposed Action.

3.1.1 Affected Environment

Arvin-Edison Water Storage District

AEWSD has a long-term contract with Reclamation for CVP supplies from the Friant Division. The annual contract entitlement for the district is 40,000 AF Class 1 and 311,675 AF Class 2 CVP supplies dependent upon the particular year's hydrology. AEWSD's current facilities were primarily constructed in the 1960s and are based on the conjunctive use of surface water imported from the Friant Division of the CVP and groundwater resources that underlie most of the district. AEWSD owns extraction wells that it uses to supply previously banked water to farms within its service area when surface water supplies are deficient. Recharging and then extraction of groundwater adds costs to water deliveries related to power used for pumping and operation and maintenance of recharge facilities. To meet the needs of its customers, AEWSD tries to maximize the value of water delivered by providing water at the least cost to growers.

Water supplies in the State vary from abundant supplies during wet periods to extreme shortages during droughts. To regulate this variability in its supplies, AEWSD utilizes its stored groundwater and has also exchanged a portion of its wet-year supplies for dry-year water available from other agencies.

AEWSD has historically made available a portion of its Friant Division CVP water supply to other CVP contractors located on the eastside of the San Joaquin Valley in exchange for their CVP supplies from northern California, diverted and wheeled into and through the California Aqueduct for ultimate delivery to AEWSD. Due to a decrease in supply reliability, dramatic cost increases, and water quality concerns, several of these exchanges are no longer feasible. As a result, it has been necessary for AEWSD to identify and implement other measures to manage its highly variable CVP water supplies.

Improvement District #4

KCWA has a master contract with the State Department of Water Resources (DWR) for SWP supplies individually contracted to ID4 and 13 local water districts, referred to as its member units. ID4's primary source of surface water is through this SWP contract, which has an annual entitlement of up to 77,000 AF for municipal and industrial purposes. In addition, ID4 receives an annual entitlement of up to 5,946 AF of SWP water for agricultural purposes. From time to time, ID4 also receives Article 21 water from the SWP, 215 Water from the CVP, and Kern River supplies as supplemental water to its SWP supplies.

The importation of the surface water supply from the SWP to ID4 serves to provide a supplemental water supply for portions of the metropolitan Bakersfield. The imported supply is delivered directly to recharge areas for direct replenishment of the underlying groundwater aquifer or to the Henry C. Garnett Water Purification Plant for treatment and delivery to in-district water purveyors. ID4 also has an extensive groundwater monitoring and reporting program to track its progress in replenishment of the groundwater basin.

Groundwater Resources

The project area overlies the Kern County Groundwater Subbasin of the San Joaquin Valley Basin, and which is confined within the Tulare Lake Hydrologic Region. A review of the subbasin indicate that except for seasonal variation resulting from recharge and pumping, the groundwater levels have remained relatively unchanged from 1970 to 2000 (DWR, 2006). However, the Kern County Groundwater Subbasin has been identified by DWR as being critically over-drafted. By definition, "a basin is subject to critical conditions of overdraft when continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economical impacts (Reclamation, 2006)."

Natural recharge is primarily from stream seepage along the eastern subbasin and the Kern River; however, recharge of applied irrigation water is the largest contributor (DWR, 2006). In addition to other water providers in Kern County, AEWSD adopted an AB3030 Groundwater Management Plan in 2003 and ID4 adopted the AB3030 Groundwater Management Plan in 2004 and an Urban Water Management Plan in 2005 to help offset overdraft conditions in the county. Both AEWSD and ID4 are currently, with numerous other Kern County districts and public agencies, developing an Integrated Regional Water Management Plan.

Water Quality

In general, Friant Division CVP water quality is of one of the highest qualities in the State. SWP water is typically of lower quality than CVP water from the Friant Division and groundwater in certain constituents, including but not limited to total dissolved solids (TDS), bicarbonates, chlorides, sodium, and boron. The Kern River exhibits mineral quality that is excellent in all respects, with TDS concentration averaging about 100 milligrams per liter. The quality of the CVP water conveyed in the FKC is equal to or better than the quality of the Kern River. Water quality data for the FKC indicates an average TDS of 45 milligrams per liter for the period 1957 to 2000. Records indicate that there has not been much fluctuation in the quality of Kern River and FKC supplies.

In addition, groundwater quality throughout the region is suitable for most urban and agricultural uses with only local impairments. The primary constituents of concern are high TDS, nitrate, arsenic, and organic compounds (DWR 2006).

Conveyance Facilities and Rivers

Cross Valley Canal The CVC, a locally-financed facility completed n 1975, extends from the California Aqueduct near Tupman to Bakersfield. It consists of four reaches which have capacities ranging from 890 cubic-feet per second (cfs) through the first two pumping plants to 342 cfs in the unlined extension near Bakersfield. The CVC is a joint-use facility operated by the KCWA that could convey water from the Aqueduct to the CVC, and then to the Kern Water Bank, the City of Bakersfield, the Berrenda Mesa Property, the Kern River channel, the Pioneer Banking project or to the various member units of KCWA. The CVC is also capable of conveying water to the Aqueduct.

In 2008, as part of the CVC expansion project, an additional 500 cfs turnout was constructed from the FKC that can deliver water by gravity into either the AEWSD Intake Canal or the CVC. The FKC/CVC Intertie is also capable of moving water from the CVC to the FKC via pumping.

Friant-Kern Canal The FKC carries water over 151.8 miles in a southerly direction from Friant Dam to its terminus at the Kern River, four miles west of Bakersfield. The FKC has an initial capacity of 5,000 cfs that gradually decreases to 2,000 cfs at its terminus in the Kern River (Reclamation, 2010). The water conveyed in the FKC is from the San Joaquin River and is considered to be of good quality because it originates from the Sierra Nevada. The water is used for municipal and industrial, and agricultural purposes in Fresno, Tulare, and Kern Counties. The FKC is a part of the CVP, which annually delivers about seven million AF of water for agricultural, urban, and wildlife use.

Kern River The Kern River is about 165 miles long and is the southernmost river in the San Joaquin Valley. The river originates from the Sierra Nevada Mountains on the eastern side of Tulare County and terminates on the west side of Kern County where it is mainly diverted for local water supplies. When the Kern River enters Kern County, it deposits into Lake Isabella which was created as a result of Isabella Dam. Below the dam, the river is highly diverted through a series of canals to irrigate farms in the southern San Joaquin Valley and provide municipal water supplies to the City of Bakersfield and surrounding areas. The Kern River is one of the few rivers in the Central Valley which does not contribute water to the CVP; however, the FKC terminates into the river approximately four miles west of downtown Bakersfield.

3.1.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, Reclamation would not approve the exchange-facilitated transfer. AEWSD would retain their CVP supplies and use it as allowed under its contract with Reclamation and ID4 would look for other sources of water to supplement its SWP supply. AEWSD would continue to pursue other sources of water to deliver to ID4; however, other sources have yet to be identified, is speculative at this point, and outside the scope of this EA.

There would be no impacts to the conveyance facilities or the Kern River listed in the affected environment as conditions would remain the same. The groundwater level and quality immediately below ID4 may not benefit from the possible recharge of CVP water.

Proposed Action

Under the Proposed Action AEWSD would still have sufficient water supplies to meet their in-district water demands. CVP supplies made available for delivery to ID4 would be surplus to AEWSD's immediate operational needs. This could be due to unanticipated short-term allocations such as the declaration of "uncontrolled season" where Class 2 Friant Division CVP water is available in large amounts for a limited amount of time to all Class 2 contractors. Declarations such as this can provide the water needed for the delivery or be used to meet AEWSD's immediate irrigation demand freeing up schedulable water supplies for exchange. During uncontrolled season, AEWSD imports all the water their system is capable of transporting; consequently, the Proposed Action would not allow AEWSD to make use of more CVP water than they have the capacity to divert and recharge, such as the CVP water available during an uncontrolled season.

ID4 would use the water within its service area for groundwater recharge, municipal, industrial and/or drinking water purposes within its service area and approved places of use. If left in the groundwater subbasin, the aquifer immediately below ID4 would slightly benefit from the introduction of additional and better quality water.

The delivery of CVP water to ID4 would occur entirely within existing conveyance facilities and the Kern River, which would not be adversely impacted as the exchanged water must be scheduled and approved by Reclamation, KCWA, and the Kern River watermaster. The normal operations of the conveyance facilities and obligations by the overseeing agency to deliver water to its contractors would not be impacted. No natural streams or water courses would be affected since no additional pumping or diversion would occur; therefore, no adverse impacts would result from the implementation of the Proposed Action.

3.2 Biological Resources

3.2.1 Affected Environment

The following list (Table 1) was obtained on January 21, 2010 (Document # 100121115530), by accessing the U.S. Fish and Wildlife Service (USFWS) Database: http://www.fws.gov/sacramento/es/spp_list.htm. The list is for the following United States Geological Survey quadrangles, which overlapped the AEWSD and ID4 boundaries: Bear Mountain, Arvin, Weed Patch, Mettler, Tejon Hills, Coal Oil Canyon, Bena, Rio Bravo Ranch, Oil Center, Lamont, Edison, Oildale, Rosedale, Stevens, and Gosford.

Table 1. Sensitive Species That May Occur in Project Site

Species	*Status*[1]	*Effects*[2]	*Occurrence in the Study Area*[3]
Amphibians			
California red-legged frog (*Rana aurora draytonii*)	T	NE	**Absent**. No individuals or habitat in area of effect.
Birds			

California condor (*Gymnogyps californianus*)	E	NE	**Absent**. No individuals or habitat in area of effect.
Burrowing owl (*Athene cunicularia*)	MBTA	NE	**Present**. CNDDB[4] records indicate this species occurs in the project area. No new construction, land use changes, or modification of existing facilities.
southwestern willow flycatcher *Empidonax traillii extimus*	E	NE	**Absent**. No individuals or habitat in area of effect.
Fish			
Delta smelt (*Hypomesus transpacificus*)	T	NE	**Absent**. No natural waterways within the species' range will be affected by the proposed action.
Invertebrates			
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	T	NE	**Absent**. No individuals or habitat in area of effect.
Vernal pool fairy shrimp (*Branchinecta lynchi*)	T	NE	**Absent**. No individuals or habitat in area of effect.
Mammals			
Buena Vista Lake shrew *Sorex ornatus relictus*	E, X	NE	**Absent**. No individuals or habitat in area of effect.
giant kangaroo rat (*Dipodomys ingens*)	E	NE	**Absent**. No individuals or habitat in area of effect.
Tipton kangaroo rat *Dipodomys nitratoides nitratoides*	E	NE	**Present**. CNDDB records indicate this species occurs in the project area. No construction of new facilities; no conversion of lands from existing uses.
San Joaquin kit fox (*Vulpes mactotis mutica*)	E	NE	**Present**. CNDDB records indicate this species occurs in the project area. No construction of new facilities; no conversion of lands from existing uses.
Plant			
Bakersfield cactus (*Opuntia treleasei*)	E	NE	**Present**. CNDDB records indicate this species occurs in the project area. No construction of new facilities; no conversion of lands from existing uses.
California jewelflower (Caulanthus californicus)	E	NE	**Absent**. No individuals or habitat in area of effect.
San Joaquin adobe sunburst (*Pseudobahia peirsonii*)	T	NE	**Absent**. No individuals or habitat in area of effect.
San Joaquin woolly-threads (*Monolopia congdonii*)	E	NE	**Absent**. Believed to be extirpated and habitat is not present in area
Reptiles			
Blunt-nosed leopard lizard (*Gambelia sila*)	E	NE	**Present**. Documented as extant along north eastern border of KCWA ID4. No construction of new facilities; no conversion of lands from existing uses
Giant garter snake (*Thamnophis gigas*)	T	NE	**Absent**. No individuals documented in this area.

1 Status= Listing of Federally special status species
E: Listed as Endangered.
T: Listed as Threatened.
MBTA: Those species protected by the Migratory Bird Treaty Act.
X: Critical Habitat designated for this species.
2 Effects = NE = No Effect determination.
3 Definition Of Occurrence Indicators
Present: Species observed in area
Absent: Species not observed in study area and habitat requirements not met.
4 CNDDB = California Natural Diversity Database 2010

Special-Status Species

With the conversion of much of the San Joaquin Valley floor to agriculture, suitable habitat for special-status species is scarce. A number of animals that have federally-protected status as endangered or threatened potentially occur in the general area. These include blunt-nosed leopard lizard, Western burrowing owl, Tipton kangaroo rat, and the San Joaquin kit fox (Table 1).

3.2.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, there would be no impacts to biological resources since conditions would remain the same as existing conditions.

Proposed Action

Effects are similar to the No Action Alternative. Most of the habitat types required by species protected by the Endangered Species Act (ESA) do not occur in the project area. The Proposed Action would not involve the conversion of any land fallowed and untilled for three or more years. The Proposed Action also would not change the land use patterns of the cultivated or fallowed fields that do have some value to listed species of birds protected by the Migratory Bird Treaty Act (MBTA). Since no natural stream courses or additional pumping would occur, there would be no effects on listed fish species. No critical habitat occurs within the area affected by the Proposed Action and so none of the primary constituent elements of any critical habitat would be affected.

3.3 Land Use

3.3.1 Affected Environment

Arvin-Edison Water Storage District

AEWSD includes the City of Arvin and is located in the proximity of the unincorporated communities of Edison, Lamont, Mettler, and DiGiorgio. The vast majority of farmland in the Arvin-Edison service area is classified as Irrigated Farmland by the California Department of Conservation (DOC 2010). The second main farmland classification in the service area is Non-irrigated Farmland.